WHAT IS CLAIMED IS:

1. A projection exposure apparatus, comprising:

an illumination optical system for illuminating a pattern of a reticle with laser light from a continuous emission excimer laser;

a projection optical system for projecting the illuminated pattern onto a substrate; and

adjusting means for adjusting an optical characteristic of said projection optical system in accordance with a change in wavelength of the laser light.

2. An apparatus according to Claim 1, wherein said adjusting means includes correcting means for correcting a change in optical characteristic of said projection optical system due to a change in wavelength of the laser light.

3. An apparatus according to Claim 1, wherein said adjusting means includes detecting means for detecting the wavelength of the laser light.

4. An apparatus according to Claim 1, wherein said adjusting means operates to adjust the optical characteristic of said projection optical system by (i) moving at least one of a reticle, a wafer and one

or more lenses of said projection optical system in an optical axis direction of said projection optical system, (ii) tilting at least one of the reticle, the wafer and one or more lenses of said projection optical system, (iii) decentering one or more lenses of said projection optical system, or (iv) changing a pressure of a closed space between lenses.

5. An apparatus according to Claim 1, further comprising driving means for scanningly moving the reticle and the substrate, wherein said illumination optical system illuminates the reticle with slit-like light of a rectangular or arcuate shape.

6. An apparatus according to Claim 1, wherein said apparatus is adapted for formation of an image of a linewidth 0.13 micron, and wherein a half bandwidth of a wavelength spectrum of the laser light is not greater than 0.1 pm.

7. An apparatus according to Claim 1, wherein said apparatus is adapted for formation of an image of a linewidth 0.09 micron, and wherein a half bandwidth of a wavelength spectrum of the laser light is not greater than 0.08 pm.

8. An apparatus according to Claim 1, wherein

said excimer laser is an ArF excimer laser, and wherein the glass material is SiO2.

9. An apparatus according to Claim 1, wherein said excimer laser is an F2 excimer laser, and wherein the glass material is CaF2, BaF2 or MgF2.

10. An apparatus according to Claim 8, wherein said lens system includes lens elements of a number of at least ten, and wherein first one or first two of said lens elements in an order from the substrate side are made of CaF2, BaF2 or MgF2.

11. A device manufacturing method, comprising the steps of:

exposing a substrate with a pattern by use of a projection exposure apparatus as recited in Claim 1; and

developing the exposed substrate.